



Air Quality Permitting Response to Public Comments

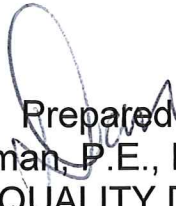
JULY 28, 2017

Permit to Construct No. P-2011.0054

Project No. 61834

**Milner Butte Landfill
Burley, Idaho**

Facility ID No. 031-00046


Prepared by:
Dan Pitman, P.E., Permit Writer
AIR QUALITY DIVISION

Final

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BACKGROUND

The Idaho Department of Environmental Quality (DEQ) provided for public comment on the proposed permit to construct for two new generator engines at Milner Butte Landfill from June 13, 2017 through July 13, 2017, in accordance with IDAPA 58.01.01.209.01.c. During this period, comments were submitted in response to DEQ's proposed action. Each comment and DEQ's response is provided in the following section. All comments submitted in response to DEQ's proposed action are included in the appendix of this document.

PUBLIC COMMENTS AND RESPONSES

Public comments regarding the technical and regulatory analyses and the air quality aspects of the draft permit are summarized below. Questions, comments, and/or suggestions received during the comment period that did not relate to the air quality aspects of the permit application, the Department's technical analysis, or the draft permit are not addressed. For reference purposes, a copy of the Rules for the Control of Air Pollution in Idaho can be found at: <http://adminrules.idaho.gov/rules/current/58/0101.pdf>.

Comment 1: Permit Condition 2.4 and NSPS Applicability: As noted in the permit description, the existing blower/flare station at SISW is "equipped with two blowers and a single enclosed flare." Draft Permit Condition 2.4 provides that SISW shall "route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii)(A) or (C)" of 40 CFR §60.752, which addresses compliance options for treatment of landfill gas under NSPS Subpart WWW. 40 CFR § 60.752(b)(2)(iii)(A), however, applies to an "open flare" and the existing flare at the Milner Butte Landfill is an enclosed flare. Similarly, the NSPS Applicability section of the Statement of Basis identifies 40 CFR § 60.752(b)(2)(iii)(A) as "one of the two options Milner Butte has elected to comply with." Draft Statement of Basis at page 11. The references to subparagraph (A) are in error because SISW uses an enclosed flare. Therefore, the relevant Subpart WWW provision with which SISW must comply for operation of its flare is 40 CFR §60.752(b)(2)(iii)(B), which applies to a "control system designed and operated to reduce NMOC by 98 weight-percent ... "

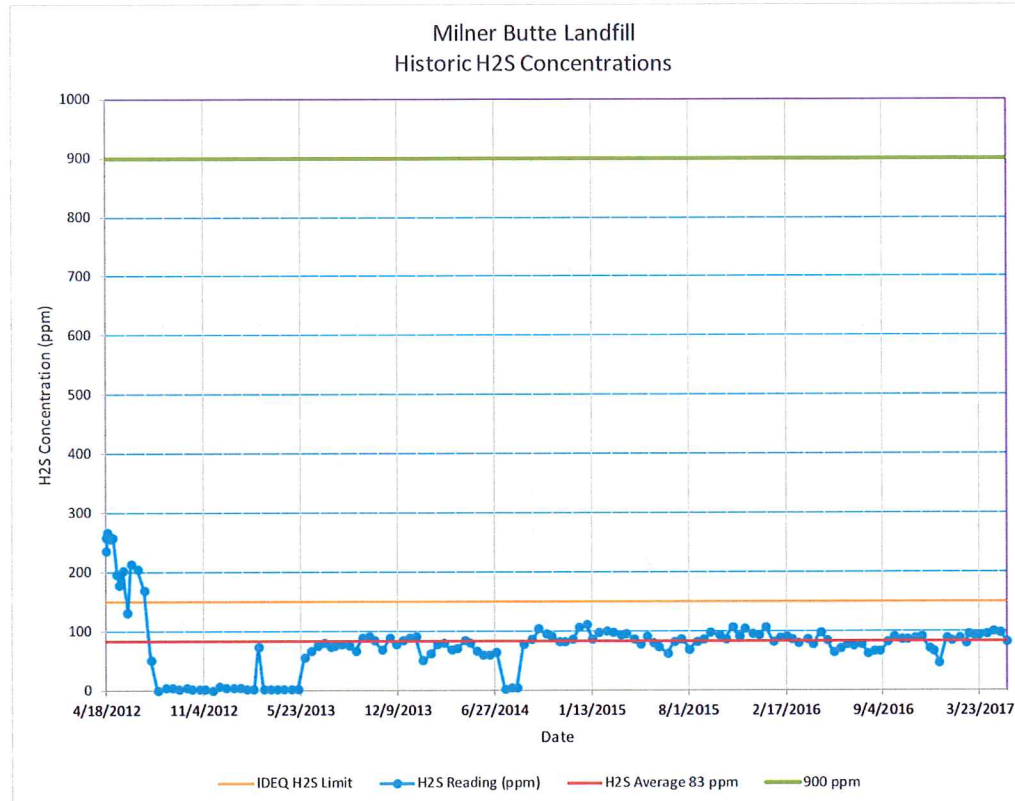
SISW requests that IDEQ correct both Permit Condition 2.4 and the Statement of Basis to specify that the applicable requirements for the SISW enclosed flare are found at 40 CFR § 60.752(b)(2)(iii)(B).

Response 1: **DEQ has corrected the permit and statement of basis to reflect that an enclosed flare is used as requested. The source shall comply with 40 CFR 60.752(b)(2)(iii)(B), which is for an enclosed flare.**

Comment 2: Permit Condition 2.3.1 and Hydrogen Sulfide (H₂S) Limits: IDEQ provides two related justifications for imposing a permit condition limiting allowable concentrations of H₂S in the landfill gas that is flared and/or combusted to 150 ppm. First, IDEQ argues that average hydrogen sulfide concentrations in the landfill gas at SISW (Southern Idaho Solid Waste - also known as Milner Butte Landfill) are approximately 84 ppm, but "it cannot be said with certainty that hydrogen sulfide emission[s] will not increase over time" and could be "significantly higher." Second, IDEQ asserts that maximum values of H₂S will drive potential noncompliance with the SO₂ ambient standards and therefore an H₂S limit is necessary. Statement of Basis at page 13. SISW maintains that a permit condition limiting the H₂S concentration to 150 ppm is not necessary and should be removed from the PTC.

SISW agrees that site-specific measured H₂S concentrations are far more accurate in

terms of predicting maximum values than AP-42 emission factors, which is why SISW relied on actual monitored concentrations as an input to the S02 modeling and not AP-42 emission factors for H2S from landfills. As noted in the Statement of Basis, 150 ppm is nearly twice the average monitored H2S concentration over the last two-year period. The highest observed H2S concentration since July 12, 2012 (after the three-month startup period) is 111 ppm. As demonstrated in the chart below, H2S concentrations have been relatively stable over the last five years, with the greatest percentage of readings between 50 ppm and 110 ppm. Although other landfills may report high H2S emissions, the empirical evidence at Milner Butte does not support IDEQ's contention that limits are necessary because there "might" be high levels of H2S in the future.



Moreover, imposing an enforceable limit on H2S concentrations of 150 ppm is not necessary to ensure compliance with the S02 NAAQS. SISW recognizes that H2S is a driver for S02 emissions related to engine combustion, and relied on an H2S concentration of 150 ppm as a conservative assumption in the modeling analysis to demonstrate that the project would not cause or contribute to a violation of the S02 NAAQS. The modeling analysis requires that applicants use emission rates that "represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period." Mem. from T. Swain to D. Pitman (April 21, 2017), Table 1, attached to Statement of Basis. Therefore, SISW used the maximum stack-test sampled H2S concentration over the last two years, multiplied by a factor of 1.2 to ensure an appropriately conservative modeling input.

Using the conservative assumption that H2S concentration would reach 150 ppm, S02 emissions from the two engines plus background levels would represent less than 15% of the S02 hourly standard at the facility fence line. *See* PTC Application, NAAQS Impact Analysis Summary. Hydrogen sulfide concentrations in the landfill gas would have to increase six fold, to 900 ppm, before the hourly S02 NAAQS would be affected. IDEQ determined that a PM2.5 emissions rate is unnecessary for PM2.5 because "if emissions were to increase by a factor of 4,

and this resulted in ambient impacts from the source increasing by a factor of 4, there still would not be a violation of the PM_{2.5} ambient standards." Statement of Basis at page 13. The same logic applies to H₂S and concerns regarding noncompliance with the SO₂ NAAQS based on maximum potential increases in H₂S concentrations is not an appropriate basis for imposing an enforceable H₂S concentration limit as a permit condition.

Response 2: Milner Butte's emission inventory and ambient impact assessment included in the application for the permit is based on an assertion that H₂S concentrations would not exceed 150 ppm. DEQ was not provided technical information in the application proving that a higher value would meet ambient standards or toxic air pollutant increments. As documented in the Statement of Basis, H₂S concentrations in landfill gases are known to be highly variable and that there is a potential for them to be significantly higher than 150 ppm. Therefore a limit equivalent to the concentration used in the analysis for the permit is included in the permit.

Emissions of PM_{2.5} are not expected to vary as H₂S concentrations are, so the comparison of the two pollutants is not appropriate.

Notably, in the text of the comment itself, Milner Butte provides historical data indicating H₂S concentrations have been as high as approximately 275 ppm. The application for the permit has not provided an analysis, including an air pollution dispersion model, demonstrating that higher than 150 ppm concentrations of H₂S in the landfill gas would comply with the 1-hr SO₂ standard or the toxic air pollutant increment for H₂S. DEQ has maintained the 150 ppm H₂S concentration limit in the permit. The H₂S limit is required to be complied with at all times and the information provided by Milner Butte in the comment itself provides justification for the need for the limit.

DEQ also notes that Milner Butte used DEQ guidance regarding applying a compliance "buffer" factor of 1.2. This guidance also includes the following statement: "Air quality permits often include emission rate limits equivalent to estimated emissions included in the application; these are the rates that the applicant has shown demonstrate compliance. If the source exceeds the permitted emission rate limit, it is operating in violation of its permit."

Milner Butte may pursue a permit modification to change the allowable H₂S concentration in a separate permit action. That application would need to include additional detailed information regarding potential H₂S and SO₂ emissions and air pollution dispersion modeling to show compliance with SO₂ standards, and information documenting compliance with H₂S increments.

Comment 3: Permit Condition 3.3 and SO₂ and NO_x Limits: IDEQ also has added SO₂ and NO_x engine emission limits with both a lb/hour and ton per-year limit. SISW disagrees that separate permit limits for the engines are necessary to protect the NAAQS or to ensure that Milner Butte remains below Prevention of Significant Deterioration ("PSD") applicability thresholds.

IDEQ asserts in the Statement of Basis that "sulfur dioxide emissions limits are warranted," without further substantiation, and imposes an SO₂ permit limit of 0.61 lb/hour. The limit is equal to the estimated potential to emit from both engines as derived from SISW's modeling inputs, specifically the conservative assumption of a maximum H₂S concentration of 150 ppm. As noted above, however, even if the H₂S concentration and therefore the SO₂ emission rate exceeded the potential to emit of 0.61 lb/hour, the emissions would not cause or contribute to a violation of the NAAQS. This standard is therefore not necessary to protect the NAAQS.

Moreover, the compliance with the S02 emission rate is tied to compliance with permit condition limiting the concentration of H2S. Although SISW agrees that it is not appropriate to create a separate monitoring condition for S02 emissions from the engine, an S02 emission limit is redundant and would serve only to create additional compliance risk because a violation of the H2S standard, however unlikely, also would appear to be a violation of the S02 emission limit. To the extent that IDEQ insists on retaining this emission limit, SISW requests clarification regarding the purpose of the S02 emission limit and how IDEQ would enforce this provision.

Similarly, a separate NOx emission limit of 1.2 g/HP-hr based on the calculated potential to emit is not necessary. The Statement of Basis calculates potential impacts based on compliance with the NSP Subpart JJJJ limit of 3.0 g HP/hr and asserts that if "NOx emissions were to equal those allowed by 40 CFR 60 Subpart JJJJ the source may not be in compliance with ambient standards for NO2." Statement of Basis at page 14. This misrepresents the potential impact of NOx emissions from the engines on the NAAQS. The engines' calculated potential to emit NOx, based on manufacturer's performance data plus a compliance margin, is 1.2 g/HP-hr. Operation of the engines for a period of 8760 hours would result in maximum ambient impacts equal to 55% of the NAAQS. NOx emissions from the engines would have to increase by 79% from the calculated potential to emit to threaten the NAAQS.

IDEQ agrees that separate standards are not necessary for particulate or carbon monoxide emissions "to assure compliance with ambient standards" because emission rates could increase by between a factor of four and 10 and would not affect the NAAQS. The modeling demonstrates that maximum S02 and NOx emissions result in ambient impacts between 15% and 55% of the NAAQS, respectively, and therefore emissions could increase substantially beyond the engines' maximum potential to emit and would not cause or contribute to a violation of the NAAQS. The reasoning on which IDEQ relies to determine that emission limits are not necessary for PM and CO applies equally to S02 and NOx.

Furthermore, total post-project estimated S02 emission are 10.5 tpy and estimated total post-project NOx emissions are 45.5 tpy, which is an order of magnitude below the PSD applicability threshold of 250 tpy. Indeed, although the facility is a Title V major source because it is subject to the Subpart WWW NSPS, the facility's potential to emit any criteria pollutant does not approach the PSD applicability thresholds. The highest potential to emit of any criteria pollutant is carbon monoxide, with an estimated potential to emit of 96 tpy, and IDEQ agrees that there is no need for an emission limit for CO.

SISW disagrees that separate emission limits for criteria pollutants such as S02 and NOx are necessary to avoid either the PSD applicability thresholds or to protect the NAAQS. SISW requests that IDEQ remove both the rate-based and total tpy emission limits from the PTC.

Response 3: DEQ established emission rate limits that are equivalent to those emission rates used in the application to demonstrate compliance. Each emission standard in the permit must be complied with. The commenter states that the 0.61 pound per hour SO₂ emission rate limit is based on "the conservative assumption of a maximum H₂S concentration of 150 ppm." However, information was not provided to DEQ substantiating that the 150 ppm H₂S concentration which is used to estimate SO₂ emissions is a conservative assumption for emissions. In fact, in Comment #2, Milner Butte provides historical data indicating H₂S concentrations have been as high as approximately 275 ppm indicating that the 150 ppm assumption may not be representative of emissions at all times. Also, as documented in the Statement of Basis, the concentration of H₂S in landfill gases are known to be highly variable and have been reported to be as high as 610 ppm at the Ada County Landfill¹.

¹ Statement of Basis supporting the issuance of this permit (Permit to Construct P-2011.0054), Appendix E response to comment #1.

For these reasons SO₂ emission rate limits are warranted. Also, including emission rate limits for pollutants that may have highly variable emissions rates serve to allow DEQ to manage air quality because it can rely on the emission rate limits in the permit in conducting other air quality assessments such as issuing permits to nearby sources.

PM and CO emissions are not expected to be as variable as SO₂ emissions and the comparison of the means of regulating PM and CO to SO₂ are not appropriate because of the potential variability of SO₂ emissions.

The 1.2 g/hp-hr NOx emission factor that was used to establish the NOx emission rate limits is not based on a manufacturer guarantee. DEQ notes that this value is only 40% of the value that correlates to the NSPS limitation of 3 g/hp-hr. Emission rates above the pound per hour values in the permit may not be in compliance with ambient standards. Also, as is the case with the SO₂ emission rate limits, the NOx emissions limits serve to allow DEQ to manage air quality because it can rely on the emission rate limits in the permit in conducting other air quality assessments such as issuing permits to nearby sources. Also DEQ believes that NOx emissions from the engines may be highly variable depending on how the engine is tuned. PM emissions from the engines are not expected to as variable as NOx emissions, so comparing the means of regulating PM emissions and NOx emissions is not appropriate.

CO emissions may vary by a substantial amount and still be in compliance with ambient standards. It is the commenter's assessment that emission of NOx emissions would have to increase by 79% to cause ambient impact concerns. DEQ believes it is possible for NOx emissions to vary by this amount and NOx limits are warranted. If carbon monoxide emissions rates were increase by a factor of 10, and this resulted in ambient impacts from the source increasing by a factor of 10, there still would not be a violation of the carbon monoxide ambient standards. Therefore, a comparison of the means of regulating CO emissions and NOx emissions is not appropriate.

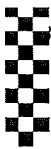
Milner Butte may pursue a permit modification to change the allowable rates in a separate permit action. Additional air pollution dispersion modeling would be required to be submitted to justify higher emission rates.

DEQ also notes that Milner Butte used DEQ guidance regarding applying a compliance "buffer" factor of 1.2. This guidance also includes the following statement: "Air quality permits often include emission rate limits equivalent to estimated emissions included in the application; these are the rates that the applicant has shown demonstrate compliance. If the source exceeds the permitted emission rate limit, it is operating in violation of its permit."

Appendix

Public Comments Submitted for

Permit to Construct No. P-2011.0054



RECEIVED

JUL 13 2017

A REGIONAL COOPERATIVE FOR INTEGRATED WASTE MANAGEMENT
SOUTHERN IDAHO SOLID WASTE
STATE EQ PROGRAMP.O. Box 159 • 1050 WEST 400 SOUTH • BURLEY, IDAHO 83318
BUS: (208) 432-9082 • FAX: (208) 432-6915 • WWW.SISW.ORG

Idaho Department of Environmental Quality

July 13, 2017

1410 North Hilton
Boise, Idaho 83706

Attn: Mr. Daniel Pitman, Permit Writer

Subject: Southern Idaho Solid Waste Comments re Draft PTC and Statement of Basis
Milner Butte Landfill LFG-to-Energy System
Ref: SISW Draft PTC Project 61834, Facility No. 031-00046

Dear Mr. Pitman:

Southern Idaho Solid Waste ("SISW") submits these comments to the Draft Permit to Construct ("PTC") and supporting Statement of Basis for the addition of two 1810 horse-power generators that will operate on landfill gas generated at the Milner Butte landfill, which is currently burned at the facility's existing enclosed flare. SISW appreciates IDEQ's work to date on this permit.

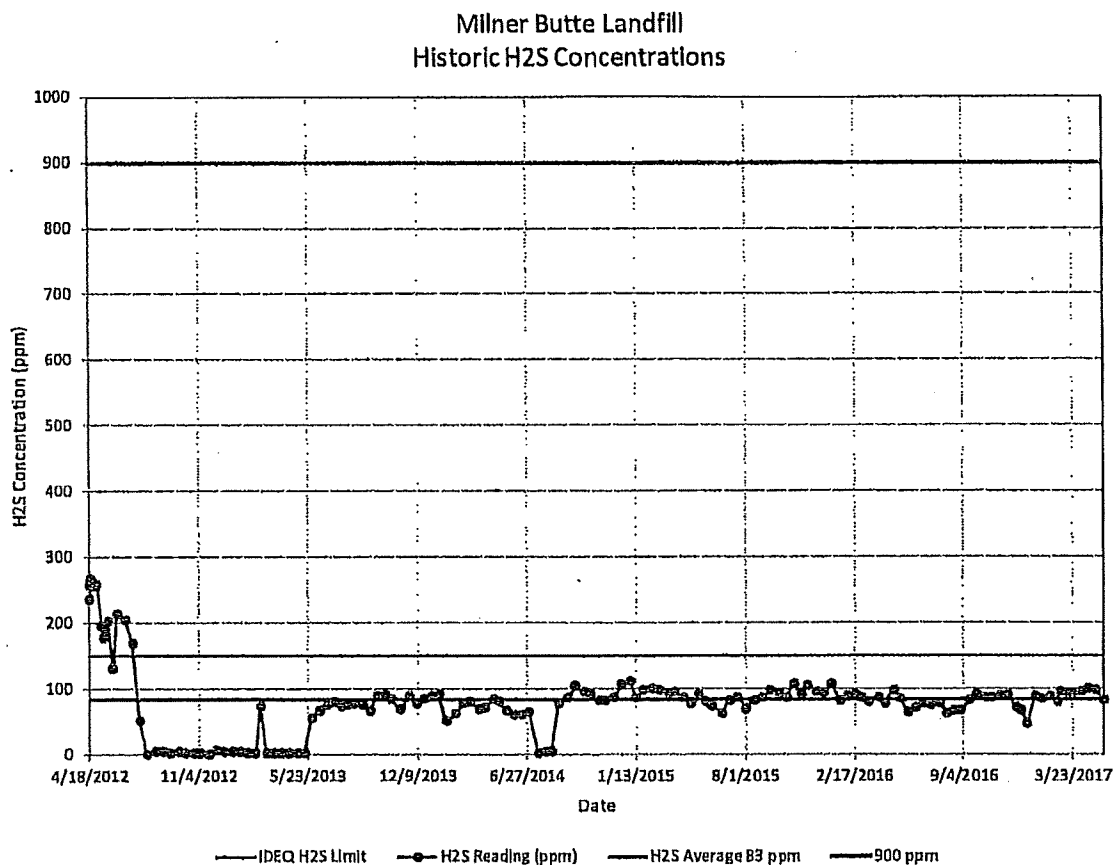
Permit Condition 2.4 and NSPS Applicability: As noted in the permit description, the existing blower/flare station at SISW is "equipped with two blowers and a single enclosed flare." Draft Permit Condition 2.4 provides that SISW shall "route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii)(A) or (C)" of 40 CFR § 60.752, which addresses compliance options for treatment of landfill gas under NSPS Subpart WWW. 40 CFR § 60.752(b)(2)(iii)(A), however, applies to an "open flare" and the existing flare at the Milner Butte Landfill is an enclosed flare. Similarly, the NSPS Applicability section of the Statement of Basis identifies 40 CFR § 60.752(b)(2)(iii)(A) as "one of the two options Milner Butte has elected to comply with." Draft Statement of Basis at page 11. The references to subparagraph (A) are in error because SISW uses an enclosed flare. Therefore, the relevant Subpart WWW provision with which SISW must comply for operation of its flare is 40 CFR § 60.752(b)(2)(iii)(B), which applies to a "control system designed and operated to reduce NMOC by 98 weight-percent ..."

SISW requests that IDEQ correct both Permit Condition 2.4 and the Statement of Basis to specify that the applicable requirements for the SISW enclosed flare are found at 40 CFR § 60.752(b)(2)(iii)(B).

Permit Condition 2.31 and Hydrogen Sulfide (H₂S) Limits: IDEQ provides two related justifications for imposing a permit condition limiting allowable concentrations of H₂S in the

landfill gas that is flared and/or combusted to 150 ppm. First, IDEQ argues that average hydrogen sulfide concentrations in the landfill gas at SISW are approximately 84 ppm, but “it cannot be said with certainty that hydrogen sulfide emission[s] will not increase over time” and could be “significantly higher.” Second, IDEQ asserts that maximum values of H₂S will drive potential noncompliance with the SO₂ ambient standards and therefore an H₂S limit is necessary. Statement of Basis at page 13. SISW maintains that a permit condition limiting the H₂S concentration to 150 ppm is not necessary and should be removed from the PTC.

SISW agrees that site-specific measured H₂S concentrations are far more accurate in terms of predicting maximum values than AP-42 emission factors, which is why SISW relied on actual monitored concentrations as an input to the SO₂ modeling and not AP-42 emission factors for H₂S from landfills. As noted in the Statement of Basis, 150 ppm is nearly twice the average monitored H₂S concentration over the last two-year period. The highest observed H₂S concentration since July 12, 2012 (after the three-month startup period) is 111 ppm. As demonstrated in the chart below, H₂S concentrations have been relatively stable over the last five years, with the greatest percentage of readings between 50 ppm and 110 ppm. Although other landfills may report high H₂S emissions, the empirical evidence at Milner Butte does not support IDEQ’s contention that limits are necessary because there “might” be high levels of H₂S in the future.



Moreover, imposing an enforceable limit on H₂S concentrations of 150 ppm is not necessary to ensure compliance with the SO₂ NAAQS. SISW recognizes that H₂S is a driver for SO₂ emissions related to engine combustion, and relied on an H₂S concentration of 150 ppm as a conservative assumption in the modeling analysis to demonstrate that the project would not cause or contribute to a violation of the SO₂ NAAQS. The modeling analysis requires that applicants use emission rates that “represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period.” Mem. from T. Swain to D. Pitman (April 21, 2017), Table 1, attached to Statement of Basis. Therefore, SISW used the maximum stack-test sampled H₂S concentration over the last two years, multiplied by a factor of 1.2 to ensure an appropriately conservative modeling input.

Using the conservative assumption that H₂S concentration would reach 150 ppm, SO₂ emissions from the two engines plus background levels would represent less than 15% of the SO₂ hourly standard at the facility fence line. See PTC Application, NAAQS Impact Analysis Summary. Hydrogen sulfide concentrations in the landfill gas would have to increase six fold, to 900 ppm, before the hourly SO₂ NAAQS would be affected. IDEQ determined that a PM_{2.5} emissions rate is unnecessary for PM_{2.5} because “if emissions were to increase by a factor of 4, and this resulted in ambient impacts from the source increasing by a factor of 4, there still would not be a violation of the PM_{2.5} ambient standards.” Statement of Basis at page 13. The same logic applies to H₂S and concerns regarding noncompliance with the SO₂ NAAQS based on maximum potential increases in H₂S concentrations is not an appropriate basis for imposing an enforceable H₂S concentration limit as a permit condition.

Permit Condition 3.3 and SO₂ and NO_x Limits: IDEQ also has added SO₂ and NO_x engine emission limits with both a lb/hour and ton per-year limit. SISW disagrees that separate permit limits for the engines are necessary to protect the NAAQS or to ensure that Milner Butte remains below Prevention of Significant Deterioration (“PSD”) applicability thresholds.

IDEQ asserts in the Statement of Basis that “sulfur dioxide emissions limits are warranted,” without further substantiation, and imposes an SO₂ permit limit of 0.61 lb/hour. The limit is equal to the estimated potential to emit from both engines as derived from SISW’s modeling inputs, specifically the conservative assumption of a maximum H₂S concentration of 150 ppm. As noted above, however, even if the H₂S concentration and therefore the SO₂ emission rate exceeded the potential to emit of 0.61 lb/hour, the emissions would not cause or contribute to a violation of the NAAQS. This standard is therefore not necessary to protect the NAAQS.

Moreover, the compliance with the SO₂ emission rate is tied to compliance with permit condition limiting the concentration of H₂S. Although SISW agrees that it is not appropriate to create a separate monitoring condition for SO₂ emissions from the engine, an SO₂ emission limit is redundant and would serve only to create additional compliance risk because a violation of the H₂S standard, however unlikely, also would appear to be a violation of the SO₂ emission limit. To the extent that IDEQ insists on retaining this emission limit, SISW requests clarification regarding the purpose of the SO₂ emission limit and how IDEQ would enforce this provision.

Similarly, a separate NOx emission limit of 1.2 g/HP-hr based on the calculated potential to emit is not necessary. The Statement of Basis calculates potential impacts based on compliance with the NSPS Subpart JJJJ limit of 3.0 g HP/hr and asserts that if "NOx emissions were to equal those allowed by 40 CFR 60 Subpart JJJJ the source may not be in compliance with ambient standards for NO₂." Statement of Basis at page 14. This misrepresents the potential impact of NOx emissions from the engines on the NAAQS. The engines' calculated potential to emit NOx, based on manufacturer's performance data plus a compliance margin, is 1.2 g/HP-hr. Operation of the engines for a period of 8760 hours would result in maximum ambient impacts equal to 55% of the NAAQS. NOx emissions from the engines would have to increase by 79% from the calculated potential to emit to threaten the NAAQS.

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Furthermore, total post-project estimated SO₂ emission are 10.5 tpy and estimated total post-project NOx emissions are 45.5 tpy, which is an order of magnitude below the PSD applicability threshold of 250 tpy. Indeed, although the facility is a Title V major source because it is subject to the Subpart WWW NSPS, the facility's potential to emit any criteria pollutant does not approach the PSD applicability thresholds. The highest potential to emit of any criteria pollutant is carbon monoxide, with an estimated potential to emit of 96 tpy, and IDEQ agrees that there is no need for an emission limit for CO.

SISW disagrees that separate emission limits for criteria pollutants such as SO₂ and NOx are necessary to avoid either the PSD applicability thresholds or to protect the NAAQS. SISW requests that IDEQ remove both the rate-based and total tpy emission limits from the PTC.

Thank you for the opportunity to provide comment on the Draft PTC and Statement of Basis for the addition of two engines at the Milner Butte landfill. If you have any questions regarding this submission, please contact me or Stephen Freiburger.

Best regards,



Josh Bartlome
Executive Director & CEO
Southern Idaho Solid Waste